

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the application of:

Juichiro UKON et al.

Serial No.: new application

Filed: November 9, 2001

Group Art Unit: Not Assigned

Examiner: Not Assigned

Atty Docket No.: 103120-00027

For: METHOD FOR MONITORING AND/OR CONTROLLING THE STATUS OF A PLASMA IN A PLASMA SPECTROMETER AND SPECTROMETER FOR IMPLEMENTING SUCH A METHOD

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
Washington, D.C. 20231

Filed: November 9, 2001

Sir:

Please amend the above-identified application prior to the initial examination of the application. A marked-up copy of the claims showing the changes is attached.

**IN THE CLAIMS:**

Please cancel claims 1-19.

Please add new claims 20-43 as follows.

-- 20. A method for monitoring and/or controlling the status of a plasma in a plasma spectrometer, which comprises:

acquiring image data of the plasma; and at least one of

a) displaying an image of the plasma from the image data on a display device, and

b) storing the image data in a computer unit along with measured data.

21. The method according to claim 20, wherein the plasma spectrometer is an optical emission spectrometer.

22. The method according to claim 20, wherein the spectrometer is a mass spectrometer.

23. The method according to claim 20, wherein the image data are processed to obtain intensity images, intensity contour, color contour, intensity outline, time base fluctuation of above image data and compared with a plasma optimal condition data set.

24. The method according to claim 23, wherein the plasma spectrometer is an optical emission spectrometer.

25. The method according to claim 23, wherein the spectrometer is a mass spectrometer.

26. The method according to claim 24, wherein the spectrometer has an entrance slit and image data of the spectrometer entrance slit are acquired, and an image of the entrance slit is displayed from the acquired entrance slit image data on the display device simultaneously with the plasma image and/or the acquired entrance slit image data are stored in the computer unit simultaneously with the plasma image data.

27. The method according to any one of claims 20, 23, 24 or 26, wherein the plasma is a radially oriented plasma.

28. The method according to any one of claims 20 or 23, wherein the plasma is an axially oriented plasma.

29. The method according to claim 28, wherein the spectrometer is an optical emission spectrometer.

30. The method according to claim 28, wherein the spectrometer is a mass spectrometer.

31. The method according to any one of claims 20 to 26, which further comprises acquiring plasma sound data and either reproducing plasma sound from the registered plasma sound data on the display device and/or storing plasma sound data in the computer unit.

32. The method according to any one of claims 20 to 26, further comprising locating the display device and/or the computer unit remotely from the spectrometer.

33. A plasma spectrometer comprising a video-camera fixed on an enclosure of a plasma generating device, said video-camera being coupled to at least one of a display device and a computer unit for displaying and/or storing plasma image data obtained through the video-camera.

34. A spectrometer according to claim 33, wherein the plasma is a radially oriented plasma.

35. The spectrometer according to claim 34, wherein image data of an entrance slit of a detector device of the spectrometer are simultaneously obtained with the plasma image data through the video-camera.

36. The spectrometer according to claim 34, wherein the video-camera is axially positioned with regard to the optical axis of the spectrometer.

37. The spectrometer according to claim 35, wherein the video-camera is axially positioned with regard to the optical axis of the spectrometer.

38. The spectrometer according to claim 33, wherein the plasma is an axially oriented plasma.

39. The spectrometer according to claim 38, wherein the 'video camera is perpendicularly oriented with regard to the optical axis of the spectrometer.

40. The spectrometer according to any one of claims 33 to 38, which is an optical emission spectrometer.

41. The spectrometer of claim 39, which is a mass spectrometer.

42. The spectrometer according to any one of claims 33 to 39 and 41, further comprising a microphone fixed on the enclosure of the plasma generating device for acquiring plasma sound data, said microphone being coupled to the computer unit for storing and/or processing of the plasma sound data.

43. The spectrometer according to claim 40, further comprising a microphone fixed on the enclosure of the plasma generating device for acquiring plasma sound data, said microphone being coupled to the computer unit for storing and/or processing of the plasma sound data. --

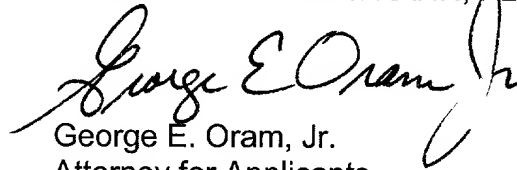
#### REMARKS

By this Amendment, claims 1-19 are canceled and claims 20-43 are added to correct the multiple dependencies thereof and to place this application into better condition for examination. No new matter has been added.

In the event that there are any fees due with respect to the filing of this paper,  
please charge Deposit Account No. 01-2300.

Respectfully submitted,

ARENT FOX KINTNER PLOTKIN & KAHN, PLLC



George E. Oram, Jr.  
Attorney for Applicants  
Registration No. 27,931

1050 Connecticut Avenue, NW  
Suite 400  
Washington, DC 20036-5339  
Tel: (202) 828-3455  
Fax: (202) 638-4808  
GEO/ bjk

TECH/49455.1